

HYDROLOGY AND WATER QUALITY TECHNICAL WORKING GROUP (HG)
HG MEETING NOTES
June 28-29, 2005 Meeting in Bismarck

Draft Rev as of July 2, 2005

Use and Meaning of the ‘Meeting Notes’. Plenary and Technical Working Group meeting notes are intended to be a general summary of key issues raised and discussed by participants at meetings. The presentation of issues or items discussed is not designed to be totally comprehensive, or reflect the breadth or depth of discussions. It is intended to record the gist of conversations and conclusions. Where a consensus or other agreement was reached, it will be so noted. Where ideas or comments are from only one or several participants, or where a brainstormed list is presented the content of which was not agreed to by all group members, the recorders will to the best of their abilities note these qualifiers. When participants raise comments about the meeting notes, or make other suggestions or comments following meetings which are more than “corrections,” we will add these in a section at the end of the meeting notes captioned “Post Script.”

For this document, in all instances consensus was not really tested on any issue and, rather, these notes contain ideas that emerged.

Introduction. The Hydrology and Water Quality Working Group (HG) met during the afternoon of June 28 and on June 29th to continue the work begun on June 9-10 at Ft Snelling. All four Technical Working Groups met initially on June 28 in a joint working group session. The meeting included:

- Introductions.
- Review of the Terms of Reference for the Groups.
- Clarification of the COE needs from the Plenary Group in a recommendation.
- The COE then presented (via Powerpoint) the summary of the work undertaken by the COE after the June 9-10 meeting by running various possible Spring Rise hydrographs on the COE model. The report will be on the web and is entitled “Missouri River Master Water Control Manual Review and Update Study, Spring Rise Alternatives Analysis.” See handouts attached.

In addition to the facilitators’ meeting summary, this document contains the attendance list for all Technical Working Groups (Attachment A). The presentation slides will be on the web site. This summary does not attempt to summarize the data from the presentations.

June 28, 2005 – Day 1

The following activities were undertaken:

- The CDR Team convened the meeting, and facilitated introductions.
- Agenda review
- The HG reviewed activities undertaken since the last meeting.

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- The HG had lengthy discussions separately that are summarized in the June 29 Summary of HG June 28 meeting (see below).

Although presentations and comments thereon were the central points of discussion, the following **ideas seemed to emerge** (without any level of consensus being tested):

- Natural peaks seem preferable to plateaus.
- The 9 day limit on the COE model is problematic.
- Stakeholders may need to distinguish between the COE AOP process and the Master Manual NEPA process – the latter being much more complex to reopen.
- One decision making approach is to: (a) find the best options for the Pallid Sturgeon; and then, (2) modify these approaches to address stakeholder needs and interests.
- Due to the requirement of the BiOp for “long term” planning, the COE wants to have not just a recommendation on year 2006, but also for the longer term. This balance between 2006 vs. Long Term continues to be a challenge when data is limited.

June 29, 2005 – Day 2

General discussion. During combined meetings of the PS and HG Groups, we had a broad ranging discussion about the Spring Rise and that many concepts raised in our discussions are more suited for MRRIC rather than this Spring Rise process.

Some ideas presented included:

- A desire for a more natural peak (a spike) rather than a plateau – it is more natural and saves water.
- Questions about how a spike at Gavins will attenuate as it moves downstream – this seems to cause less negative consequences in downstream flooding.
- General discussion and some frustration concerning modeling done to date:
 - The COE model only can see a minimum of 9 days on a peak.
 - We should not let the model “drive” our decisions.
- Concern that the dry years were driving this discussion and we need to also consider that there will be normal and wet years when we are trying to move water downstream rather than preserve it.
- Comment that the Spring Rise water will come from the three reservoirs but the Spring Rise process can make suggestions about which and how.

HG Summary of its June 28 discussions. On June 29th at a joint Group meeting, the HG presented the following comments to the combined groups:

- The Corps’ modeling seems to indicate to some participants that we can tighten up the flood control constraints (thus minimizing the flood impacts downstream and conserving some water) and still have a significant increase in the frequency of the spawning cues.
- The concept of a flexible set of possible flows and “windows” for timing was summarized. This concept was referred to as “flexibility and windows. “ For example, can the Plenary Group give the Corps the criteria needed in the Spring Rise (windows of various dates, height of Spring Rise, duration of Spring Rise or slopes of rise and fall, % of the years that must have Spring Rise’s under various water conditions) and allow the COE to choose when to do it based on opportunities offered in the year’s hydrology and reducing risks downstream?

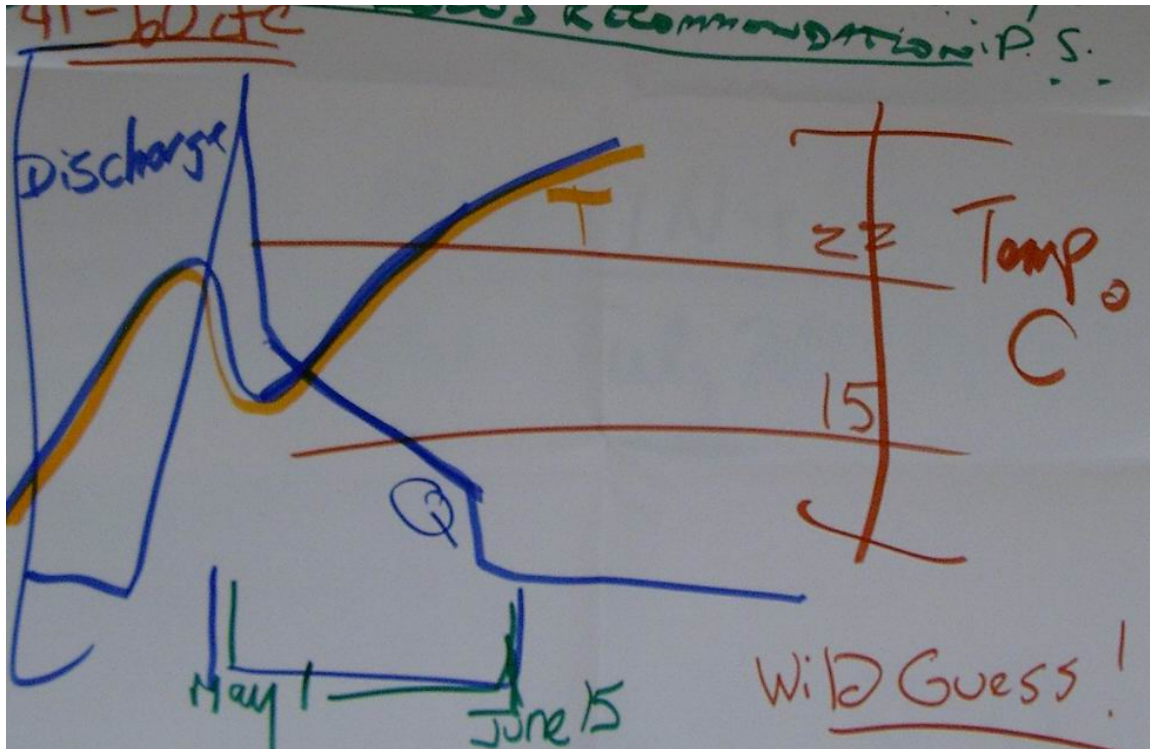
- “Just because we cannot model it, does not mean we cannot recommend it.”
- A rise with a steep rise, no plateau (a peak) but a slower decline might have less impact downstream.
- We didn’t decide on whether a higher preclude or a prorating of the Spring Rise height would be most advantageous but some believed should these issues be included in a recommendation.
- Some believe that the timing of the Spring Rise may be more significant to the upper basin.
- Mississippi River impacts – to what degree are they significant? Should they be considered in this process?

Options that were emerging. The HG discussed the prospect of identifying the options from the COE model runs that appeared to hold the most promise. The following ideas were mentioned although there was no meaningful level of agreement on this topic.

- MR16F3
- NBIO53
- BIO521 got mixed reviews; some believe it should stay in, others not as interested
- First rise only.
- Upper basin states would like to see no first rise, and let the Navigation season start with second rise (this would provide more water for the fall).

Emerging concepts from Day 2 included those listed above and:

- There is some support for looking at Robb Jacobson’s natural hydrograph approach and using percentiles
- Many think that we need to look at how temperature/degree days can be used for the Spring Rise because flow level + temperature seems to be a potential trigger.
- Some of the Pallid Sturgeon group believes that both flow and temperature are important but that temperature is the real key. Some also think that the temperature must not drop when the rise is occurring.
- Some believe that there were three options emerging from the PS Working Group for models: (1) the BiOp as modeled by the COE, (2) Robbs natural hydrograph with ROR percentiles; and (3) Aaron’s “zen view” of a rapid rise, a peak and a slow decline in which temperature is increasing.
- One view of flow and temperature interrelationship is shown below:



- Some express concern for the effect of a Spring Rise release on spawning in the reservoirs.
- The issue of “water neutrality” was discussed at some length with a view to the fact that we are using very different views of what “neutrality” means.
- Flood control constraint issues:
 - Can we tighten them?
 - Can we be more predictive about them?
 - Do these work with a shorter rise

Moving toward recommendations.

Flexible windows. Although consensus was not tested, the idea of “**flexibility for the COE and time windows**” seemed to have support. It would generally provide criteria that gave some guidance to the COE (for example, we want a bimodal rise with peaks and steep initial rises and slow descents, and for the timing to occur within specified date ranges with actual releases determined by temperature and other factors). Some suggest that the flexible window should apply to each of the three elements of the Spring Rise.

Models don’t make decisions. There seems to be strong support for the idea that we need to make a recommendation that works – not one that can be run on the COE model.

Balancing Pallid Sturgeon and socio-economic/cultural needs. A comment that seemed to identify the overarching question: “How to make a recommendation that best addresses the Pallid Sturgeon needs while also recognizing the socio economic and historic/cultural/burial site concerns?”

Is MBIO53 a starting point for adjustment? Some think that MBIO53 could be a useful starting point for adjustment with attenuation and temperature unit adjustment. Put peaks on MBIO53 instead of plateaus. Others suggest looking at BIO521.

Some emerging ideas. The following were suggested as considerations for a recommendation (without consensus):

- Keep flood control constraints in place.
- Use sharp peaks rather than plateaus.
- Bimodal peak is preferable when conditions permit it.
- Start-stop protocols need work and should include:
 - Zero rise in some conditions
 - Single rises in some conditions
 - Bimodal rises
- The **flexible windows** concept seems good and gives the COE some flexibility on temperature, time and magnitude of rise.

Areas where we **need more knowledge** include:

- We need to get a much clearer idea about how monitoring will take place and how it will be funded.
- Other runs by COE and runs on other models
- Effects of Spring Rise on reservoir levels
- Does the 20%/14 day rise provide a good check for Pallid effect?
- How long will a Spring Rise need to be tested before we make changes?
- Flood control constraints, including “Would it work to change them only during the Rise?”

USGS Advice. To get the benefit of the USGS’s advice, we need to identify for Robb the hydrographs that seem most promising.

Small Group Options for Spring Rise Principles.

In small groups, the HG also looked at some “options” that could be used to search for a way to optimize both Biological/Pallid Sturgeon and socio-economic/cultural needs. In four small groups, we looked at several ways to approach this task – from a meta view and not in detail – as follows:

Group 1 Option:

- Use a bimodal rise.
- Leave flood control values in place.
- Use a second peak – 15 days attenuated when conditions allow.
- Use a temperature window for the second peak based on Pallid Sturgeon biology.
- We need further discussion on a ‘cap’ on the second peak.

Group 2 Option:

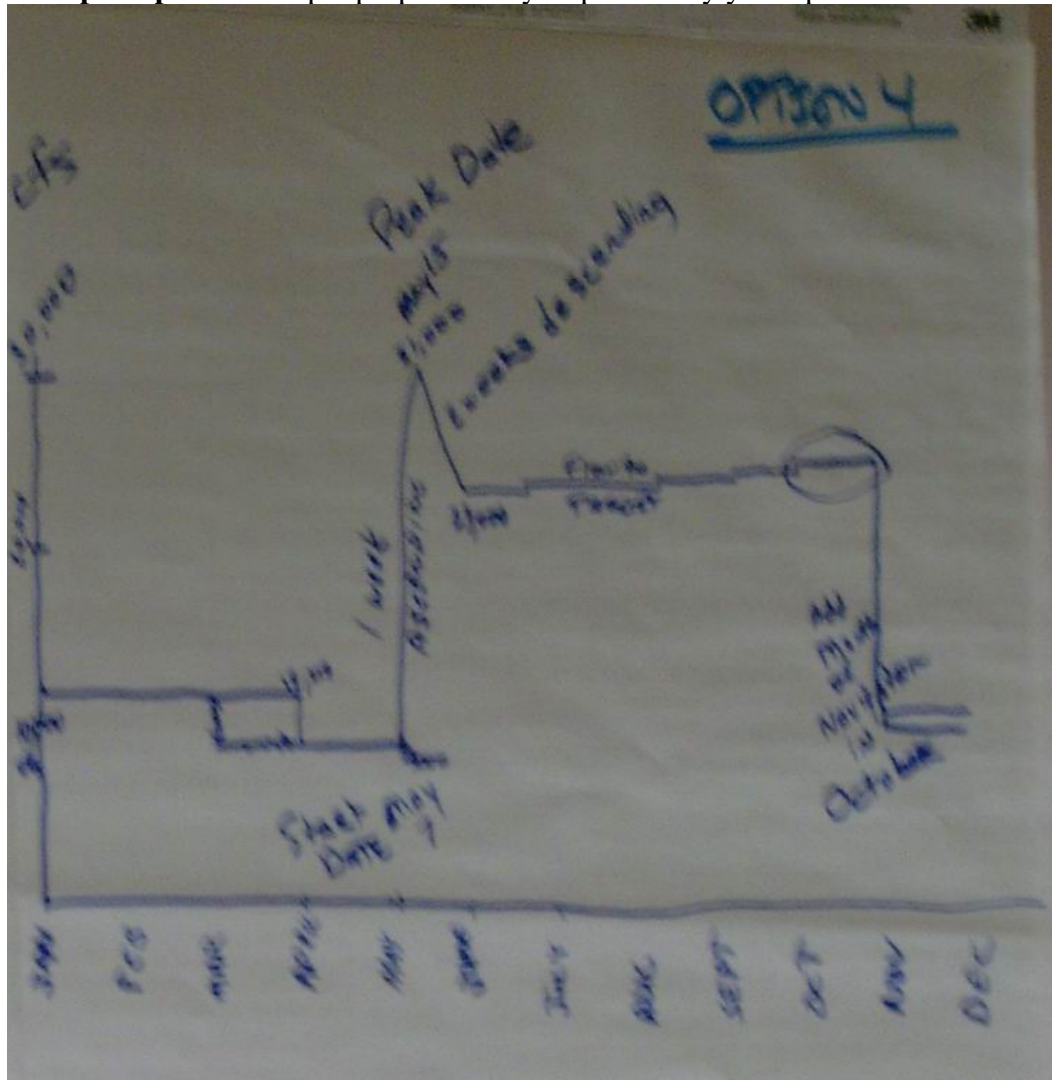
- We looked at the Pallid Sturgeon biology and the 20th Percentile flow.
- Percentile usage is not practical in the real world.
- The BiOp is vague and unclear.

- Could modify the BiOp to make it work.

Group 3 Option

- Use sharp peaks rather than plateaus
- Stage windows for the second peak based on:
 - Pallid sturgeon needs
 - Bird needs
 - Temperature
 - Photosensitivity
 - Other conditions
- Develop rating curves for “start and stop”
 - The prelude of 31 MAF would be a stop

Group 4 Option. Group 4 proposed only a specific dry year option as shown below.



Informational needs. The HG discussed:

- Need data on how Spring Rise affects reservoir levels in some detail.
- What other models can we use and how are they used? Such as:
 - UNET
 - AOP model
 - Daily Routing
- Temperature issues
 - What is the temperature for a cue? 18 degrees?
 - How to maintaining temperature (E.g., will discharge change the temperature)?
 - Is there a 30 day window in late July to mid August for prolonged spawning?

Some next steps

- COE does the requested runs, including:
 - No first pulse/winter release (Todd's)
 - Bimodal pulse with slow decline on second rise (Don's)
 - March rise only
 - Short peaks
- Each small group that presented will send out a summary of what they were thinking (Small Groups 1 through 4).
- COE will update its model for Navigation and Birds (if feasible).
- We need clarification from the COE on what COE 'Table 2' means.
- We need clarification from the COE on what the Flood Control Constraints mean.
- How many options should be presented to the Plenary (CDR Team recommend about four to six).

Attachment A
Members Listed in Capital Letters Attended the June 28-29 Meeting.

Hydrology and Water Quality Issues

- ♦ **Bob Bacon**, Coalition to Protect the Missouri River
- ♦ **Bob Riehl**, Western Area Power Administration
- ♦ **Bruce Englehardt**, North Dakota State Water Commission
- ♦ **Carlyle Ducheneaux**, Cheyenne River Sioux Tribe
- ♦ **DAVE BUSSE**, US ARMY CORPS OF ENGINEERS
- ♦ **DAVID BARFIELD**, KANSAS DIVISION OF WATER RESOURCES
- ♦ **Deb Madison**, Assinboine & Sioux tribes of Fort Peck
- ♦ **DON JORGENSEN**, MISSOURI RIVER TECHNICAL GROUP
- ♦ **JEFF SHAFER**, NEBRASKA DEPARTMENT OF NATURAL RESOURCES
- ♦ **Jim Stone**, Yankton Sioux Tribe
- ♦ **JOAN STEMLER**, US ARMY CORPS OF ENGINEERS
- ♦ **JODY FARHAT**, US ARMY CORPS OF ENGINEERS
- ♦ **JOE GIBBS**, MISSOURI LEVEE & DRAINAGE DISTRICT ASSOCIATION
- ♦ **JOHN CHILDS**, SOUTH DAKOTA, CITY OF PIERRE
- ♦ **JOHN DREW**, MISSOURI DEPARTMENT OF NATURAL RESOURCES
- ♦ **John Dunn**, Environmental Protection Agency (unconfirmed)
- ♦ **JOHN SHADLE**, NEBRASKA PUBLIC POWER DISTRICT
- ♦ **MARK RATH**, SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
- ♦ **MIKE LEVALLEY**, US FISH & WILDLIFE SERVICE
- ♦ **Mike Sauer**, North Dakota Health Dept
- ♦ **Paul Danks**, Three Affiliated Tribes
- ♦ **RICK INGLIS**, NATIONAL PARK SERVICE
- ♦ **ROBERT L. PEARCE**, US ARMY CORPS OF ENGINEERS, RET.
- ♦ **ROGER COLLINS**, US FISH & WILDLIFE SERVICE
- ♦ **Roy McAllister**, US Army Corps of Engineers
- ♦ **TOM CHRISTENSEN**, BASIN ELECTRIC POWER CORP.
- ♦ **TYLER COLE**, NATIONAL PARK SERVICE
- ♦ **WAYNE NELSON-STASTNY**, SOUTH DAKOTA GAME, FISH & PARKS
- ♦ **WAYNE STANCILL**, US FISH & WILDLIFE SERVICE
- ♦ **TBD**, EPA SuperFund

Resources to the Working Group

- ♦ **ROBB JACOBSON**, US GEOLOGICAL SURVEY
- ♦ **Dr. David Galat**, US Geological Survey
- ♦ **DALE BLEVINS**, US GEOLOGICAL SURVEY

Observers

Carl Fourstar
Craig Fleming
David Sieck
Joe Cothorn
Mike Swenson

Nick Stas
Paul Gross
Rose Hargrave
Sindhuja Subramania Pillai
Stan Schwellenbach

Steve Kelly
Sue Jennings
Todd Sando
Tom Graves
Vic Simmons

Pallid Sturgeon/Fish and Wildlife

- ♦ **BILL BEACOM**, PASSENGER VESSEL ASSOCIATION
- ♦ **BRIAN CANADAY**, MISSOURI DEPARTMENT OF CONSERVATION
- ♦ **Cliff Johnson**, Yankton Sioux Tribe
- ♦ **Chris Hay**, University of Nebraska (unconfirmed)
- ♦ **CRAIG FLEMING**, US ARMY CORPS OF ENGINEERS
- ♦ **Deb Madison**, Assinboine & Sioux Tribes of Fort Peck
- ♦ **Doug C. Latka**, US Army Corps of Engineers
- ♦ **GERALD MESTL**, NEBRASKA GAME & FISH
- ♦ **Harold Tyus**, University of Colorado (unconfirmed)
- ♦ **JANE LEDWIN**, US FISH & WILDLIFE SERVICE
- ♦ **JERRY BIG EAGLE**, CHEYENNE RIVER SIOUX TRIBE
- ♦ **Jim Jenniges**, Nebraska Public Power District
- ♦ **Johanna Murray**, Cheyenne River Sioux Tribe
- ♦ **John Shadle**, Nebraska Public Power District
- ♦ **KAREN ROUSE**, MISSOURI DEPARTMENT OF NATURAL RESOURCES
- ♦ **MARK DROBISH**, US ARMY CORPS OF ENGINEERS
- ♦ **Mike Ruggles**, Montana Fish & Wildlife Parks (unconfirmed)
- ♦ **DIRK SHULAND (FOR NICK STAS)** WESTERN AREA POWER ADMINISTRATION
- ♦ **PAT CASSIDY**, KANSAS CITY BOARD OF PUBLIC UTILITIES
- ♦ **Paul Danks**, Three Affiliated Tribes
- ♦ **ROCKY PLETTNER**, NEBRASKA PUBLIC POWER DISTRICT
- ♦ **STEPHEN WILSON**, NATIONAL PARK SERVICE
- ♦ **STEVE KRENTZ**, US FISH & WILDLIFE SERVICE
- ♦ **TRACY HILL**, US FISH & WILDLIFE SERVICE
- ♦ **WYATT DOYLE**, US FISH & WILDLIFE SERVICE

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- ♦ **DR. DAVID GALAT**, US GEOLOGICAL SURVEY
- ♦ **Mike Mac**, US Geological Survey
- ♦ **MIKE OLSON**, US FISH & WILDLIFE SERVICE

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Donald Stevens
Gene Zuerlein
Greg Power
Jason Skold
Mike McGhee
Pat Braaten
Roger Collins

Socio-economic Issues

- ◆ **Bill Jackson**, Agri-Services
- ◆ **BOB BACON**, COALITION TO PROTECT THE MISSOURI RIVER
- ◆ **DARLA HELMS**, WESTERN AREA POWER ADMINISTRATION
- ◆ **DAVID SIECK**, IOWA CORN GROWERS ASSOCIATION
- ◆ **Deb Madison**, Assinboine & Sioux Tribes of Fort Peck
- ◆ **Don (Skip) Meisner**, Sioux City
- ◆ **ED RAVINGTON**, CHEYENNE RIVER SIOUX TRIBE
- ◆ **GARLAND ERBELE**, SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
- ◆ **JIM PETERSON**, MISSOURI RIVER BANK STABILIZATION ASSOCIATION
- ◆ **JOE GIBBS**, MISSOURI LEVEE & DRAINAGE DISTRICT ASSOCIATION
- ◆ **Larry Kilgo**, US Army Corps of Engineers (unconfirmed)
- ◆ **Mike Swenson**, US Army Corps of Engineers
- ◆ **Nick Stas**, Western Area Power Administration
- ◆ **PAT FRIDGEN**, NORTH DAKOTA STATE WATER COMMISSION
- ◆ **Paul Danks**, Three Affiliated Tribes
- ◆ **Rebecca Kidder**, Cheyenne River Sioux Tribe
- ◆ **Rochelle Renken**, Missouri Department of Conservation (unconfirmed)
- ◆ **Roy McAllister**, US Army Corps of Engineers
- ◆ **Seth Meyer**, Food and Agricultural Policy Research Institute, University of Missouri
- ◆ **STAN SWELLENBACH**, CITY OF PIERRE
- ◆ **TIM OWENS**, NEBRASKA PUBLIC POWER DISTRICT
- ◆ **Tom Christensen**, Basin Electric Power Corp
- ◆ **TOM GRAVES**, MID-WEST ELECTRIC CONSUMERS ASSOCIATION
- ◆ **WAYNE NELSON-STASTNY**, SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
- ◆ **WAYNE WERKMEISTER**, NATIONAL PARK SERVICE
- ◆ **TBD**, Farm Bureau

Observers

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Historical/Cultural and Burial Sites Issues

- ♦ **ALBERT LEBEAU**, CHEYENNE RIVER SIOUX TRIBE
- ♦ **BYRON OLSON**, STANDING ROCK SIOUX TRIBE
- ♦ **DAVE KLUTH**, WESTERN AREA POWER ADMINISTRATION
- ♦ **DON STEVENS**, NATIONAL PARK SERVICE
- ♦ **Elgin Crows Breast**, Three Affiliated Tribes
- ♦ **JOEL AMES**, US ARMY CORPS OF ENGINEERS
- ♦ **Larry Janis**, US Army Corps of Engineers (unconfirmed)
- ♦ **PAMINA YELLOW BIRD**
- ♦ **Scott Jones**, Lower Brule Sioux Tribe
- ♦ **Stan Wilmoth**, Montana State Historic Preservation Office
- ♦ **Terry Steinacher**, Nebraska State Historic Preservation Office
- ♦ **TBD**, Federal
- ♦ **TBD**, Federal Cultural/Historical Staff
- ♦ **TBD**, IA State SHPO
- ♦ **TBD**, KS State SHPO
- ♦ **TBD**, MO State SHPO
- ♦ **TBD**, SD State SHPO

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